Conformance
Rob Mungovan and Scott Hills

We’ve spent 2 days discussing the data we want the standard to support.....

... but no time discussing whether or not the data is well formed or if it can be readily interchanged across systems.
ANSI/NIST vs. the Domain Implementations

- Govt. Requirements Documents Consistently Demonstrate Confusion on this topic
  - Conformance with ANSI/NIST ITL 1-200x- referred to here as “baseline”
  - Conformance with a “Domain” is different and describes how the standard is used

- Conformance with the ANSI/NIST standard
  - Is necessary and mandatory, but does not ensure successful data interchange.
  - Provides the basics: the syntax, biometrics, and meta data for the biometrics
  - Generic parsers /writers should support this level
Three Levels of Conformance For ANSI/NIST ITL 1-200x
- Structure, Consistency, Mandatory Data

• Structure
  - Is the object well formed?
  - Are the record and field numbers in the correct locations?
  - Are the information separators in the correct locations?
  - Are the record lengths for the binary records (images) correct?

• Consistency
  - Ensure that all records listed in the CNT field (records present, type and order) are accurate
  - Ensure the IDCs (Image Designation Characters) map back to the CNT field in type 1 record
  - Ensure the image records contain images
  - Check that image heights and widths match those values in the fields
Conformance of ANSI/NIST ITL 1-200x

• Is Mandatory Data Present?
  — At least a type 1 record structure.
  — The mandatory type 1 fields must be present
  — Mandatory fields in other records (i.e. type 10, 14) must be present

• For the most part, not too many violations of the syntactical structure of the standard
  — We are 15+ years into the usage of the standard

• At least one major point of confusion remains:
Examples of Non-Compliant Structures that Violate the Baseline

• Total Field Length:
  — Some people include the marker characters in total field length, others do not

• Other problems:
  — Use of non ASCII/UTF-8 characters. Some implementations include character sets such as Latin 1 and Latin 2
  — Use of numeric compression algorithm ID instead of ASCII: e.g., “1” instead of WSQ20
  — Missing records separator when binary data (images) are present (forget to add?)
  — Non-compliant parsers:
    • E.g.: require 3 places for field numbers- 1.001 is accepted, 1.01 is rejected
    • E.g.: write the FGP (finger position code) into the record index (CNT)
Domain Conformance
Conformance with a Domain Implementation

- This is where most of the ambiguity, misinterpretation and confusion occurs.

- A “domain” - Field 1:013, is an agency-specific implementation of the standard.
  - An optional field, very few agencies use it
  - But still, the concept of “domain” is inherent to the standard

- Examples:
  - FBI EBTS, BKA GSAT, DoD EBTS, Interpol Implementation, RCMP NPS, EU BMS, Western Identification Network, individual US States
Domain Conformance Issues

• Could be the result of different “Interpretations:”
  — Flexibility of the baseline standard
    • Type 2 and type 7 records are “user defined”
  — Historical Ambiguities in the baseline standard
    • Do field lengths include the information separators?
    • What image types and compression algorithms can be used?

• Most Conformance problems are based on unclear, poorly defined, domain specifications, not on the interpretation of the baseline

• ... when there is a failure by the domain to fully describe the data elements required
Domain Conformance Problems
(based on real Domain implementations)

• Legal but unusual (and difficult to verify for domain conformance)
  — Using the same TOT for different transactions
  — Text fields not separated into standard “units”- <US>
    • Instead separated with “,” or “/”
  — Long run-on text fields 350-500 chars
    • Multiple information items not separated into subfield or item
    • Data separation based on a defined number of bytes into the field
  — Type 7 records with very large headers before the image data- i.e. “proprietary” type 7 records
    • Changing usage of type 7 by same agency- latents, scanned cards, palms
  — No min/max field lengths specified
  — No character types specified
Domain Conformance Challenges-
( based on real Domain Implementations )

• Examples of Non-Conforming domain implementations- They violate the baseline
  — Binary data in ASCII records types (i.e. type 9 record)
  — TOT codes greater than 4 characters (up to 14 chars)
  — No TOTs listed in the reference document, only records and fields
  — TOTs listed in the reference document, but no records or fields described for each TOT
  — Code tables not adhered to (IMP, field 9.003)
    • Domain makes up its own codes
Summary: Suggestions For Ensuring Conformance

• Continue to Plug Ambiguity holes in the ANSI/NIST ITL 1-200x baseline
  — Revisions over the years have eliminated some of these

• The Domain Implementations should be well defined

• A guideline or “how to” document?
  — Stick with the syntax of the baseline (use the structures defined in the standard)
  — Define unique, task based, TOTS
  — Clearly define mandatory and optional data
  — Apply liberal usage of the information separators
    • Others should be able to parse the structure into all of its constituent components
Thank You!  

Questions and Answers